Econ330 – Money and Banking
Solutions to Problem Set 1

Question 1

The main differences between stocks and bonds are:

1. *ownership rights*: stockholders have the right to vote, while bond holders don't
2. *income earned*: stockholders earn variable income (dividends), **if** the issuing company made profit and decided to distribute some or all of it; bond holders earn the interest specified on the bond
3. *recuperating order and value*: in case the issuer goes bankrupt, bond holders have priority in recuperating their bonds, while shareholders can only get a proportional part of what is left

When analyzing the IT firm, remember that a bubble means you expect prices to drop sometime soon, when the market realizes they are too high. Still, a stock would enable the holder to "get rid" of it as fast as possible, while a bond freezes an investment for a longer period of time. On the other hand, there are few IT companies large enough to be able to issue 10-year bonds (or bonds of any maturity, for that matter). So, if an IT company can issue such bonds, it is most probably a rather stable and profitable investment regardless of the means of that investment. If you are worried that the bubble might burst soon, you would probably consider stocks rather than bonds. If you want something of a long-term investment and trust the company, you can very well invest in the bond.

Question 2

First, we need to calculate the GDP deflator for year 2, using the formula for the inflation rate as the growth rate in GDP deflator:

$$\pi = \frac{GDPD_2 - GDPD_1}{GDPD_1} = \frac{GDPD_2 - 1}{1} = 0.2,$$

so the GDP deflator for year 2 is equal to $1 \cdot 0.2 + 1 = 1.2$. Next, we can calculate the real GDP for each year:

$$GDPD_1 = \frac{nominal\ GDP_1}{real\ GDP_1} = \frac{10,000}{real\ GDP_1} = 1 \Rightarrow real\ GDP_1 = \frac{10,000}{1} = 10,000,$$
$$GDPD_2 = \frac{nominal\ GDP_2}{real\ GDP_2} = \frac{12,000}{real\ GDP_1} = 1.2 \Rightarrow real\ GDP_2 = \frac{12,000}{1.2} = 10,000.$$

Hence, the growth rate of real GDP is

$$growth\ rate = \frac{real\ GDP_2 - real\ GDP_1}{real\ GDP_1} \cdot 100 = \frac{10,000 - 10,000}{10,000} \cdot 100 = 0\%.$$

The bottom line is that even though the Kingdom of Far-Far Away experienced a growth of 20% in *nominal* GDP, *real* GDP was constant because the inflation rate was also 20%.

Question 3

(i) This is a typical case of adverse selection, as the informational asymmetry occurs *before* the contract is signed, i.e. before the person buys health insurance. The health insurance provider will find out the risk (the probability of an undesired outcome) after the contract is signed.

(ii) This is an example of moral hazard, because the informational asymmetry relates to behavior *after* the contract was signed (after the person bought car insurance). The probability of an undesired outcome increases after the insurance purchase, but the insurance provider is not aware of it.

Question 4

(i) In this case, money fulfills the role of *medium of exchange*, facilitating the purchase of a car (as opposed to the buyer needing to pay for it "in kind"). It is not a unit of account (unless a comparison was made between the price of the car purchased and the price of other cars) and not a store of value (it is the car that would store value, not money).

(ii) As sums in time deposits can only be used after a certain period of time, money is used as a *store of value*, allowing the transfer of purchasing power from the current period until a future period, after the time deposit matures. It is not unit of account or medium of

exchange, as no prices are involved.

(iii) Money facilitates the comparison between two goods, so it fulfills the function of *unit of account*. If a purchase were made, it would also act as a medium of exchange, but definitely not as store of value.